

Description

Internally Colored Block and Process

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Technical Field

This invention relates to internally colored glass-like and glass blocks and the process employed by the methods of the invention to create that internal coloring while retaining the inherent outer sheen and finish of the original glass-like
10 block workpiece. In the process employed by the invention, the structural integrity of the blocks is preserved. The term "glass-like" is defined to include glass and other materials which may have light transmissive qualities.

Background Art

15 The relevant prior art includes United States Patent number 595,485, to Charles R. Lamb for Mosaic Tile issued December 14, 1897. The article of manufacture described in the Lamb patent represents an early attempt to provide a decorative glass structure adapted for mosaic work. The structure as described by Lamb may comprise two transparent glass plates having interposed
20 therebetween a layer of metallic foil and being subsequently bonded by heat treatment so as to be practically inseparable. The inventor herein suggests that an ordinary glazier's diamond can be employed to subdivide the structure so formed into shapes and sizes as desired by the user thereof.

25 Another prior art United States Patent number 2,086,185, was issued to Joseph C. Keaney and dated July 6, 1937, for Building Block. A stated primary object of the patent to Keaney is to provide a hollow glass building block adapted

to be formed in automatic glass blowing machinery. The inventor noted the practice of the day to form a structural glass building block by the method of molding two semicubical shells of glass and then bonding the shells together to form a complete block. Keaney's block is formed integrally in glass blowing
 5 machinery.

Additionally, United States Patent number 2,167,764 was patented on August 1, 1939 for **Glass Building Block** for inventor William, O. Lytle. Lytle's patent describes a transparent sheet of synthetic resin situate between the usual opposing rectangular cup shapes making up a structural glass building block such
 10 that the resin provides increased structural strength, greater resistance to the passage of radiant heat and acts as a seal, strongly adherent to glass under heat and pressure, for the opposing edges of the half sections of the block. The inventor further suggests that the resin sheet may be colored so as to cut out part of the light or for decorative purposes in which case it may be printed with designs.

15 Yet another prior art United States Patent number 2,261,011 was issued on October 28, 1941 to Otis W. Wiley for **Building Block**. The patent to Wiley relates primarily to the manufacture of hollow glass building blocks having a fusible screen disposed between the edges of the members forming the block, the screen becoming a permanent part of the completed block upon being fused
 20 therebetween by heat treatment.

Of somewhat lesser relevance to the instant invention are the United States Patents numbered 3,954,326, issued May 4, 1976 to Michaelis for **Translucent Building Blocks** and 5,038,542 to inventor Kline on August 13, 1991 for
 25 **Architectural Building Block Herewith**.

The patent to Michaelis describes a hollow, translucent building block partially filled with a transparent liquid and with an oblique wall inserted in such manner as to give rise to the visual effects sought by the invention through the optical phenomenon of total internal reflection.

The building block specified by Kline describes an injection molded plastic block structure featuring snap lock connectors to provide even spacing between blocks when assembling a structure made up of a plurality of such blocks. The plastic blocks are claimed to resemble common glass blocks and additionally to
5 provide for tinting by the introduction of tinting materials into the molding resin either prior to or during the molding process. Kline describes various decorative implementations in connection with this patented invention.

A final prior art patent discovered in applicant's pre-examination novelty search is United States Patent number 5,160,566, granted to Ashby et al. on
10 November 3, 1992 for **Decorative Glass Block**. Ashby et al. describe a scheme by means of which a decorative panel insert may be interposed between the two adjoined half members through a slot cut into and extending from the top of one vertical side wall of the glass block to the opposite vertical side wall. Subsequent to insertion, the panel is cemented to the bottom interior surface of the of the glass
15 block and the slot is sealed over.

These prior art articles and their methods are commendable and show a creative spirit for their times. The quest for relieving the monotony of clear glass blocks has been long and varied and many creative ideas have been contrived. The originators and their methods have contributed remarkably to the technology
20 involved. These prior art structures, however, do not include those elements of the instant invention that provide a long felt but unmet need in the art.

Disclosure of Invention

In accordance with the instant invention, there is provided a method for
25 internally coloring heretofore clear, hollow structural glass-like blocks. Vibrant and exciting colors may be attained over a variety of tints and shades through
~~implementation of the process presented. Structural designs using the colored~~
glass-like building blocks provided by means of the benefits presented by the instant method are limited only by the imagination and creativity of the user.

Brief Description of Drawings

Further advantages and features of the instant invention will be more fully apparent to those skilled in the art to which the invention pertains from the ensuing detailed description thereof regarded in conjunction with the accompanying
 5 drawings wherein like reference numerals refer to like parts throughout and in which:

Figure 1 is a perspective view of a conventional hollow glass-like building block as contemplated by the method of the instant invention.

Figure 2 is a vertical cross section of one of the half members forming one
 10 side of a conventional hollow glass-like building block as contemplated by the instant invention.

Figure 3 is a vertical cross section of a conventional hollow glass-like building block showing the joining of the two half members to form the block.

Best Mode for Carrying Out the Invention

Referring to the drawing and to Figure 1 with greater particularity the
 15 hollow glass-like building block is denoted generally by the numeral 10 and comprises a top side wall 12 and a lateral side wall 14. A peripheral sealing seam 16 operates to adjoin the two halves of the building block. Holes 24 are drilled in diametrically opposed corner side wall portions of the hollow block, the purpose for
 20 which will be made clear in what follows.

Referring now to Figures 2 and 3 the numeral 18 denotes the outer face panels of the hollow block, that is, the part of the block that is most often presented to view while numeral 20 denotes a half member generally. Edges 22 of two half members 20 are joined together to form the block as shown in cross
 25 section in Figure 3 thus creating the internal sealed chamber or interior cavity 26.

The internal sealed chamber 26 is a hollow, light transmissive cavity which may be translucent and is the element of the hollow glass-like block 10 into which a coloring agent is introduced to form an internal, permanently bonded coating in

accordance with the invention through holes 24 wherein one of holes 24 is used for the introduction of a coloring agent material and its diametrically opposed hole allowing air to enter for convenient egress of that material.

More explicitly and for the purpose of presenting a working example, in practicing the process specified herein, two holes 24 are drilled in diametrically opposed side wall corners of a conventional hollow glass block 10. Any residue attendant to the drilling is removed from the interior chamber or interior cavity 26 of the block. This residue has been removed by rinsing with water and then drying or allowing to dry. Into one of these holes 24 oriented at the top side wall of the block 10 is introduced a permanently bonding coloring agent material, preferably a liquid and preferably by pouring. The holes 24 are temporarily sealed or plugged so as to retain the permanently bonding coloring agent material in the cavity 26. The block 10 is then rolled about or rotated so as to cover all sides of the interior chamber or cavity 26 with the coloring agent material and then emptied of the coloring agent material. If both holes 24 are unsealed or unplugged the coloring agent material is easily emptied or expelled from the cavity through one of the holes 24. The block may be oriented so as to facilitate the draining of any excess coloring agent material. After a drying period, the holes 24 are permanently sealed by filling with a silicone sealant or the like.

Further to the presentation of this working example, suitable coloring agent materials have been determined empirically. Examples of these materials as described below are not intended to be exclusive but merely indicative of coloring materials which have been found by experiment to be satisfactory in the practice of the method of the invention.

For light blue, green magenta, red, goldenrod, purple and orange. a mixture of eight (8) parts clear, two (2) parts catalyst and one (1) part colorant has been determined to work well. While for dark blue we have used eight (8) parts clear, ~~two (2) parts catalyst and two (2) parts colorant. Of course, as is obvious, in order~~ to obtain varying hues, somewhat more or somewhat less colorant may be utilized.

In order to form a permanently bonding, hard, thin coating, we blended the clearcoat with the colorant before adding the catalyst hardener.

The term "clear" denotes a generic acrylic urethane clearcoat obtainable under the tradename SUNFIRE® from SHERWIN-WILLIAMS AUTOMOTIVE
5 FINISHES CORP.

The term "catalyst" as used herein refers to a generic hardening and drying agent well known in the automotive finishes art and obtainable under the tradename SUNFIRE CLEAR HARDENER® from SHERWIN-WILLIAMS AUTOMOTIVE FINISHES CORP.

10 The colorant materials used in our experiments in practicing the invention include the materials identified by specification numbers:

Number F6L1118 by SHERWIN WILLIAMS® for blues;

Number F6G1111 by SHERWIN WILLIAMS® for greens;

Number 3128 California Gold by SEM® for goldenrod;

15 Number 3118 Candy Apple Red by SEM® for red;

Number 3088 Mandarin by SEM® for orange;

Number 3018 Winefire by SEM® for magenta; and

Number 3108 Passion Purple by SEM® for purple.

SHERWIN-WILLIAMS® and SEM® are identified and located as:

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Sherwin-Williams Automotive Finishes Corp.

101 Prospect Ave. N.W.

Cleveland, OH 44115

United States of America

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SEM PRODUCTS, INC.
651 Michael Wylie Dr.
Charlotte, NC 28217
United States of America

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It is to be emphasized that these described coloring materials and colorants are exemplary only and not intended as limitations on the methods of the invention.

10 Industrial Applicability

The present invention finds application wherever glass-like building blocks are used in building construction or otherwise for decorative purposes and to relieve the tedium and monotony associated with colorless materials.